

FIG. 1

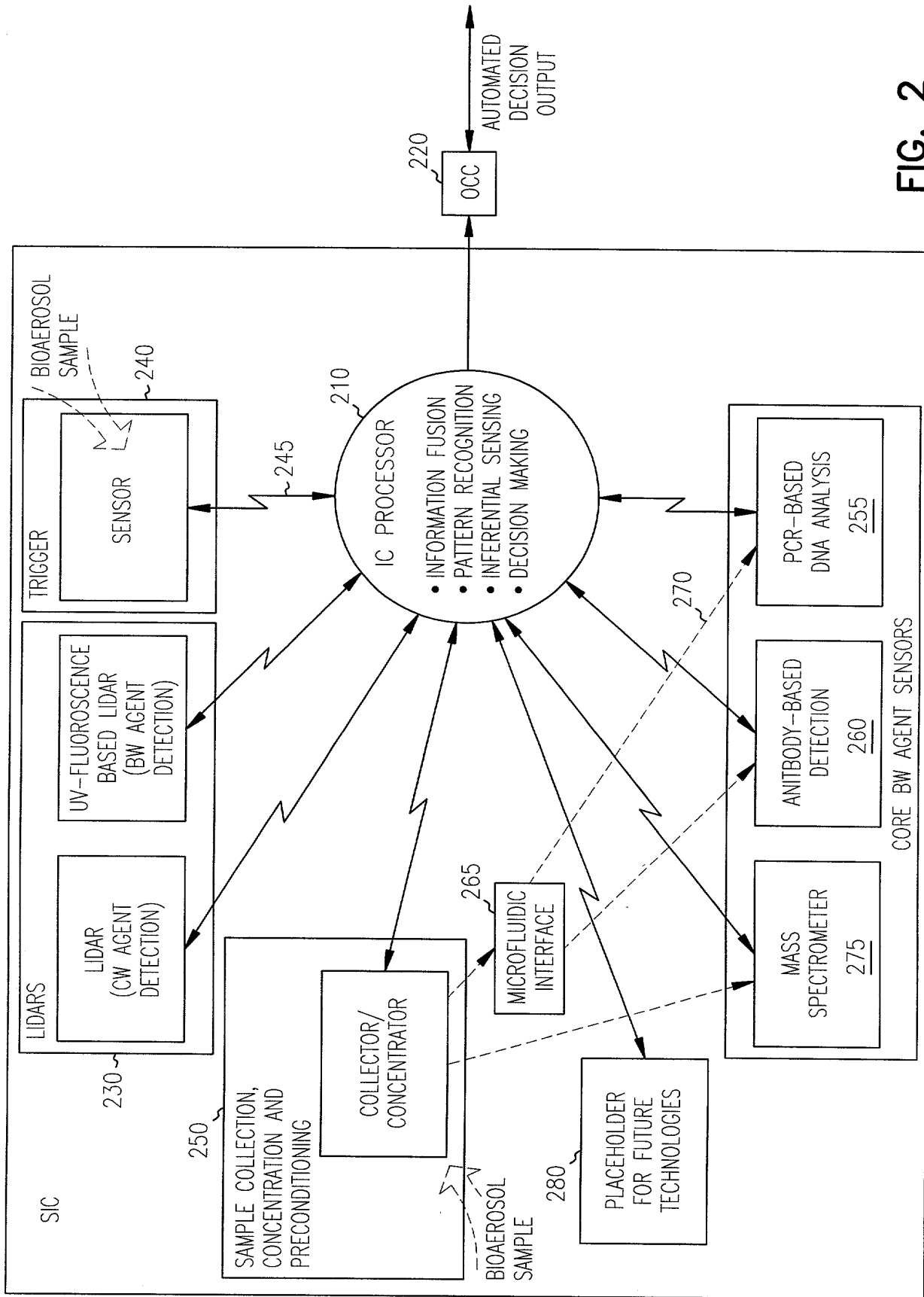


FIG. 2

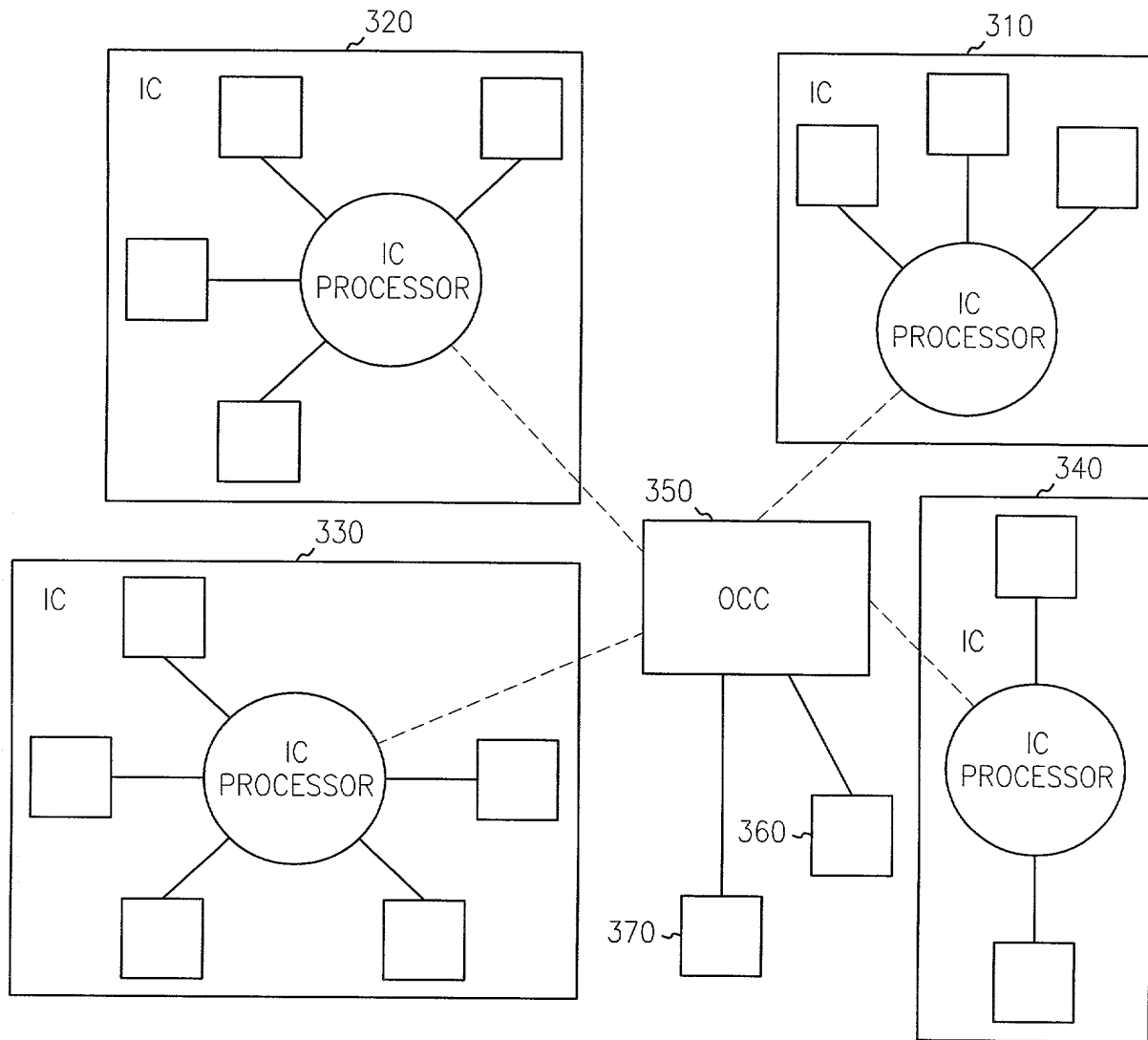
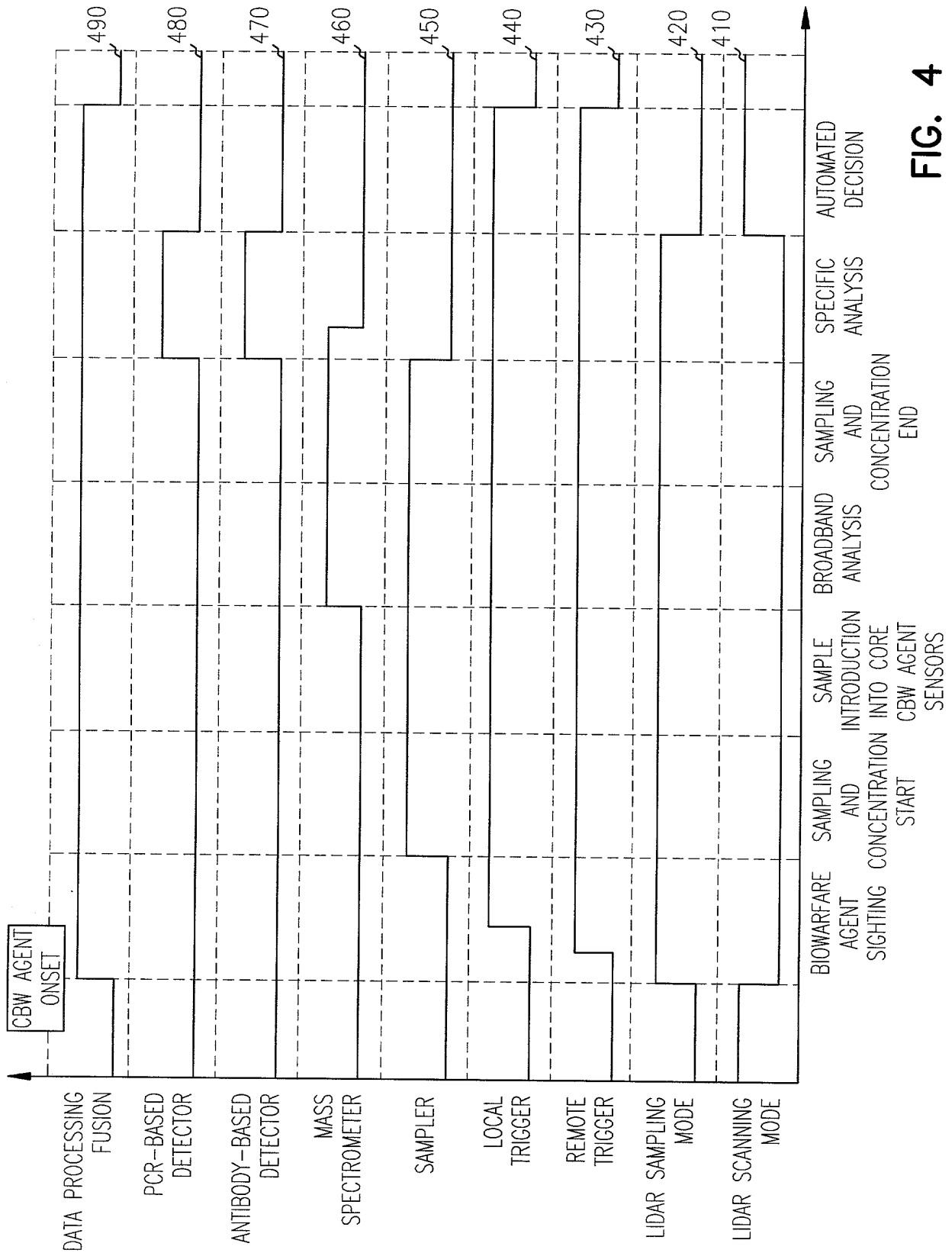


FIG. 3



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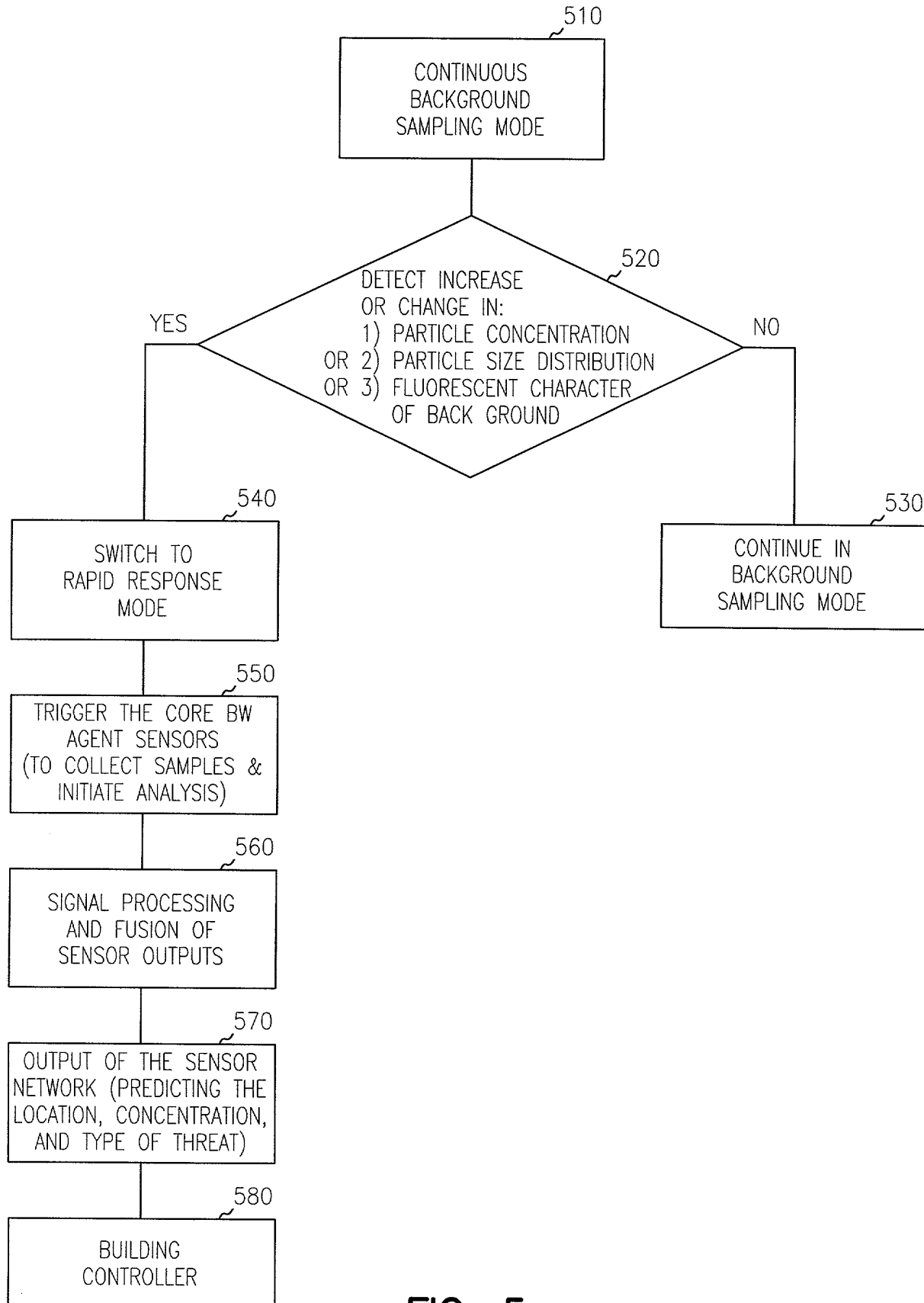


FIG. 5

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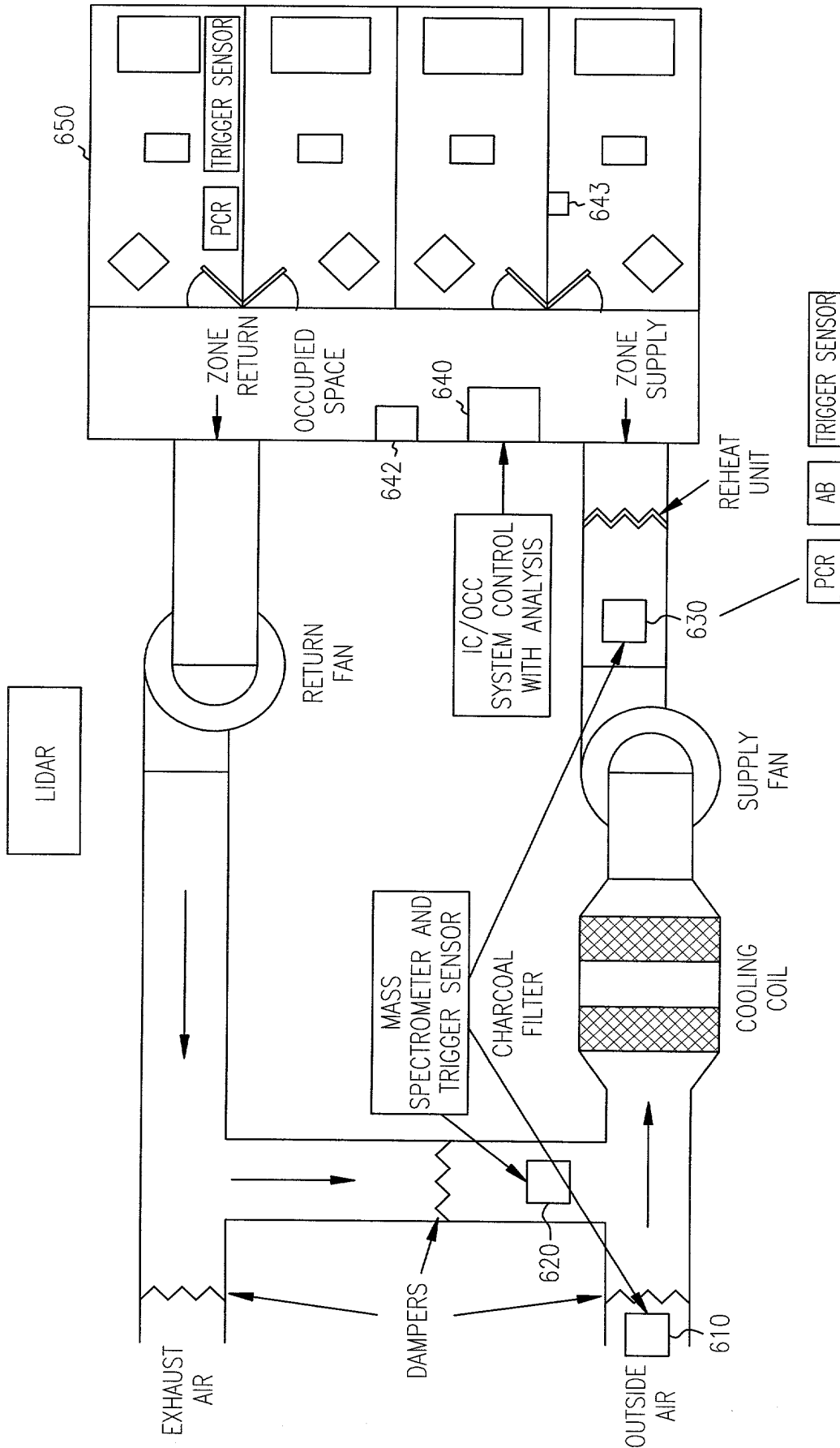


FIG. 6

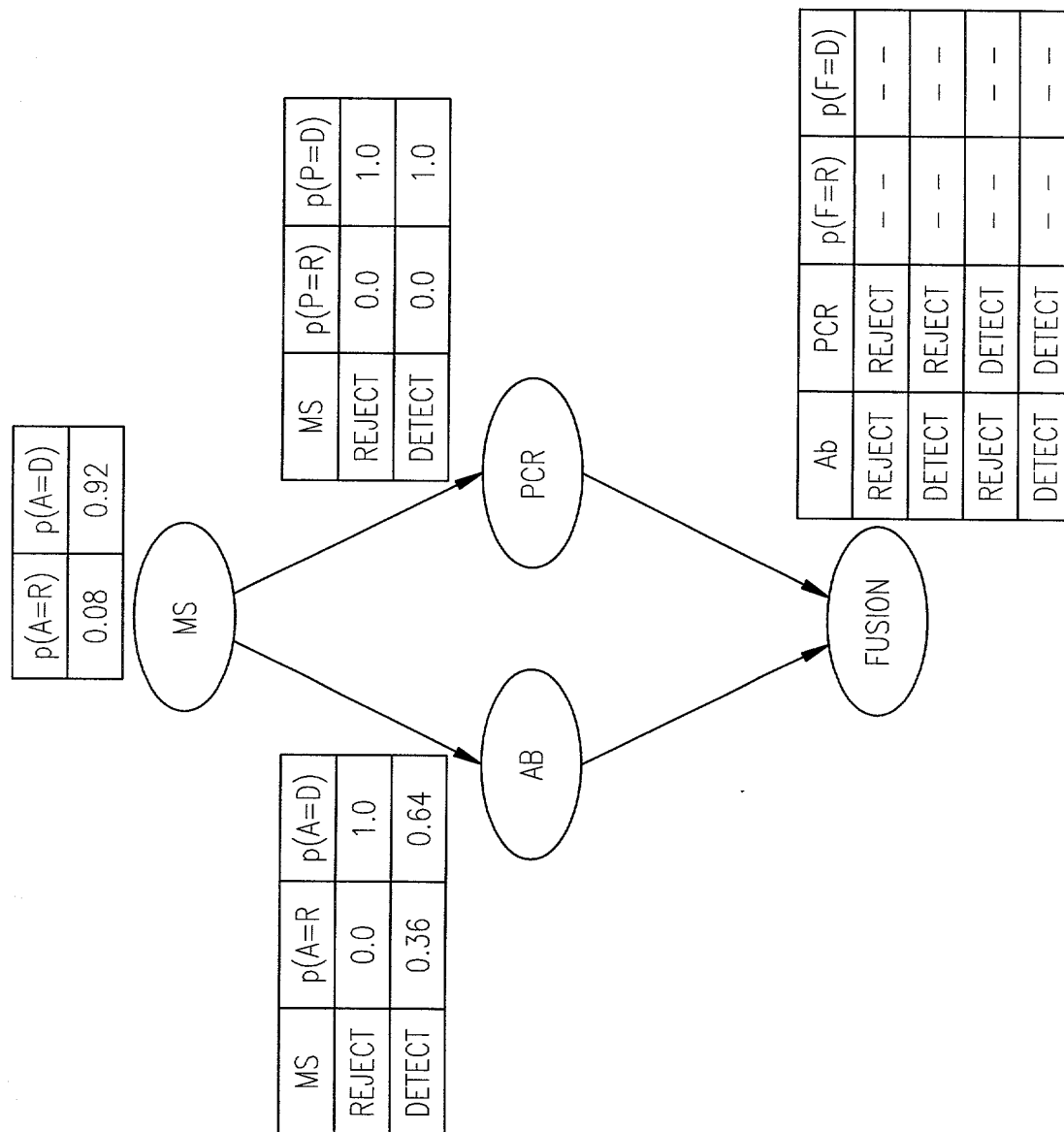


FIG. 7

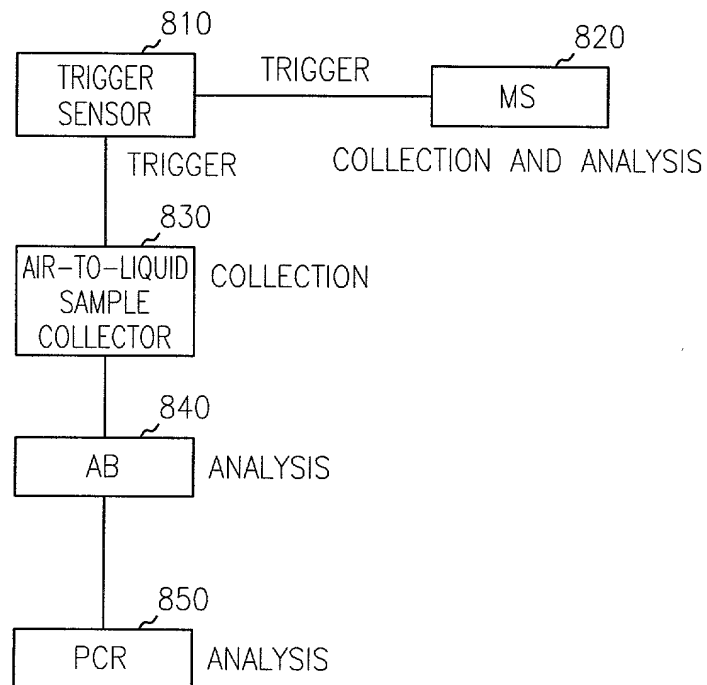


FIG. 8A

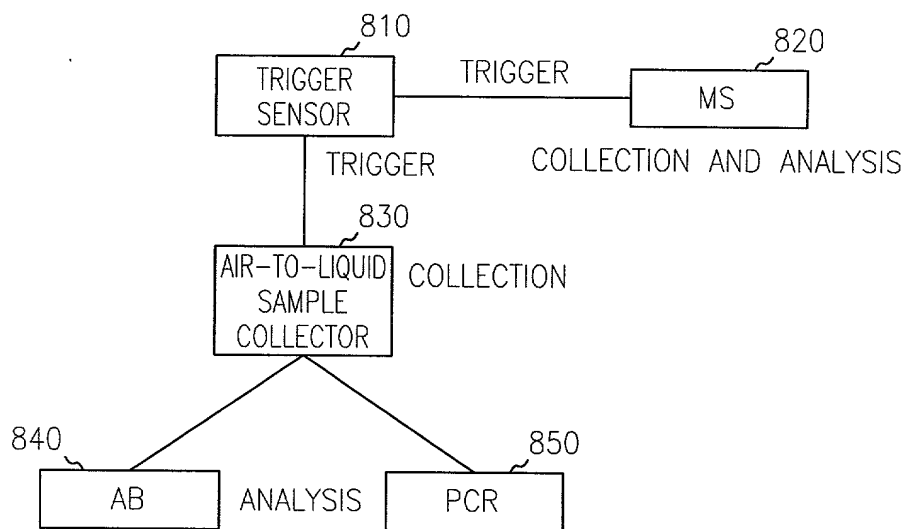


FIG. 8B



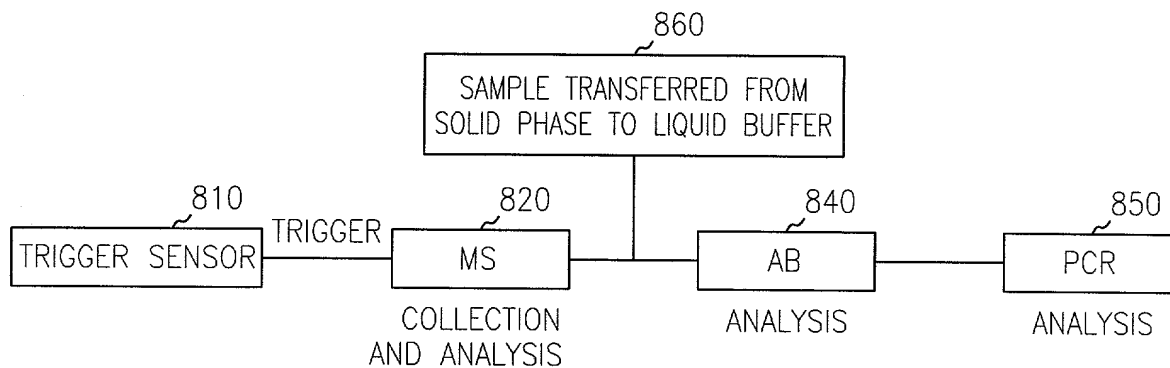


FIG. 8C

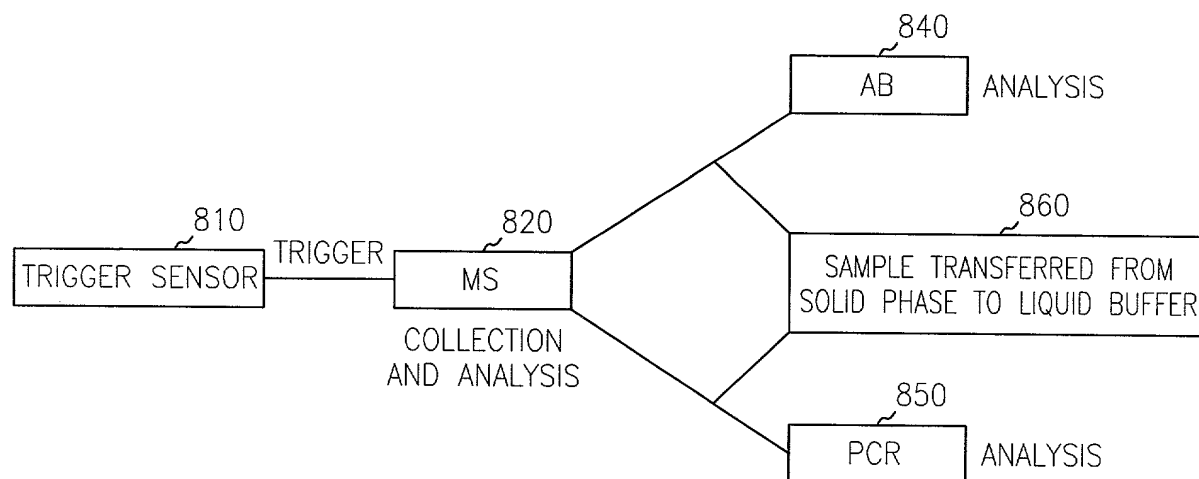


FIG. 8D

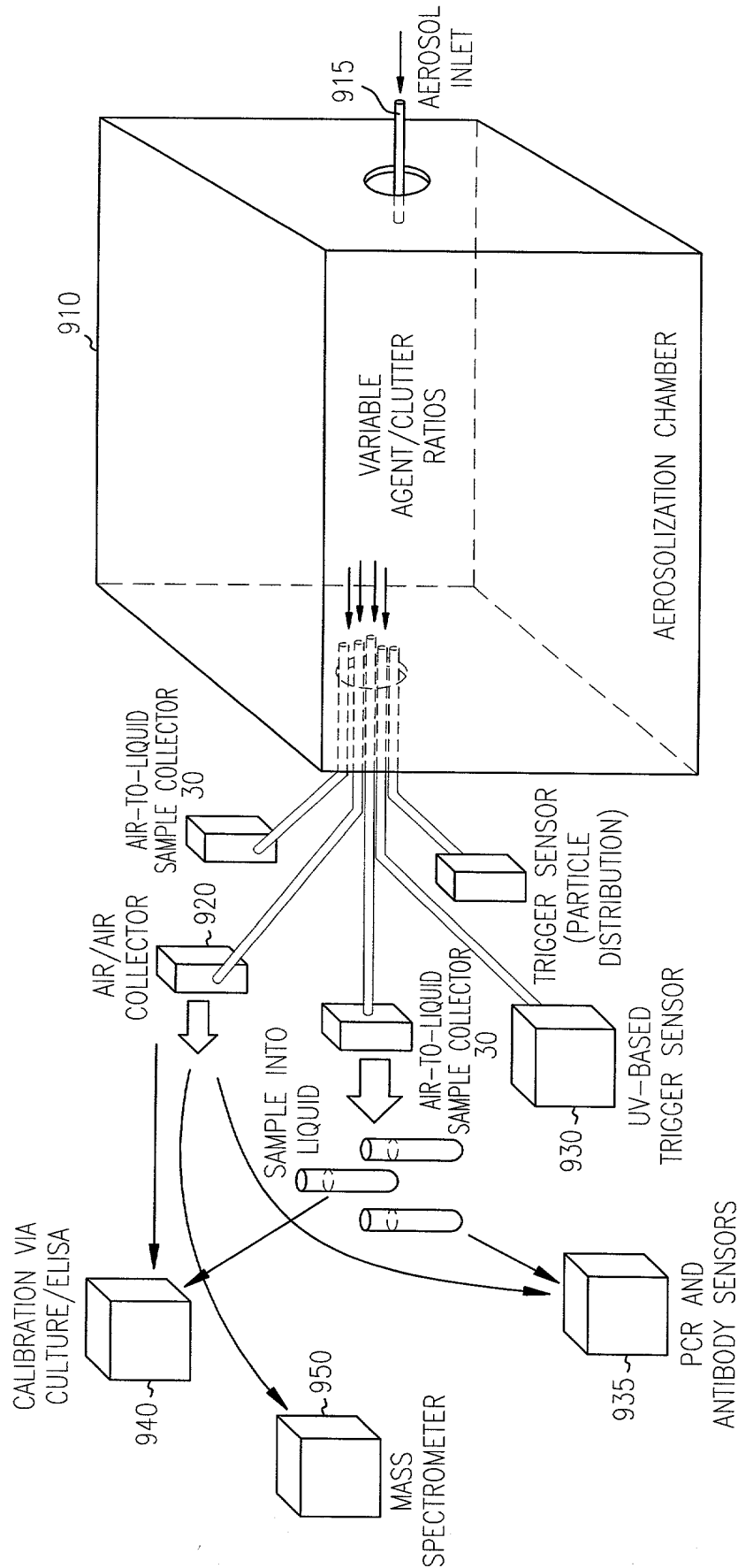


FIG. 9

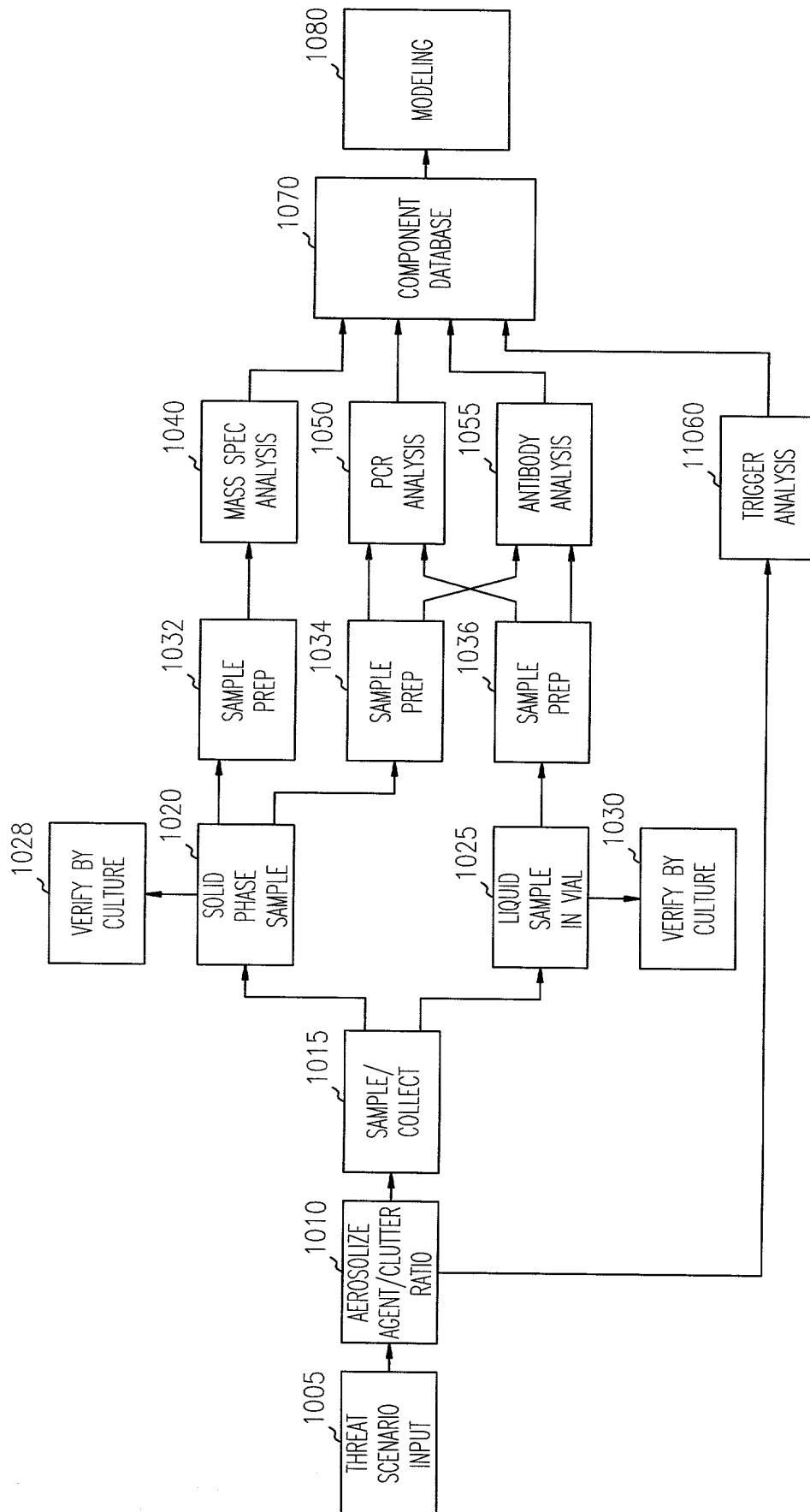


FIG. 10

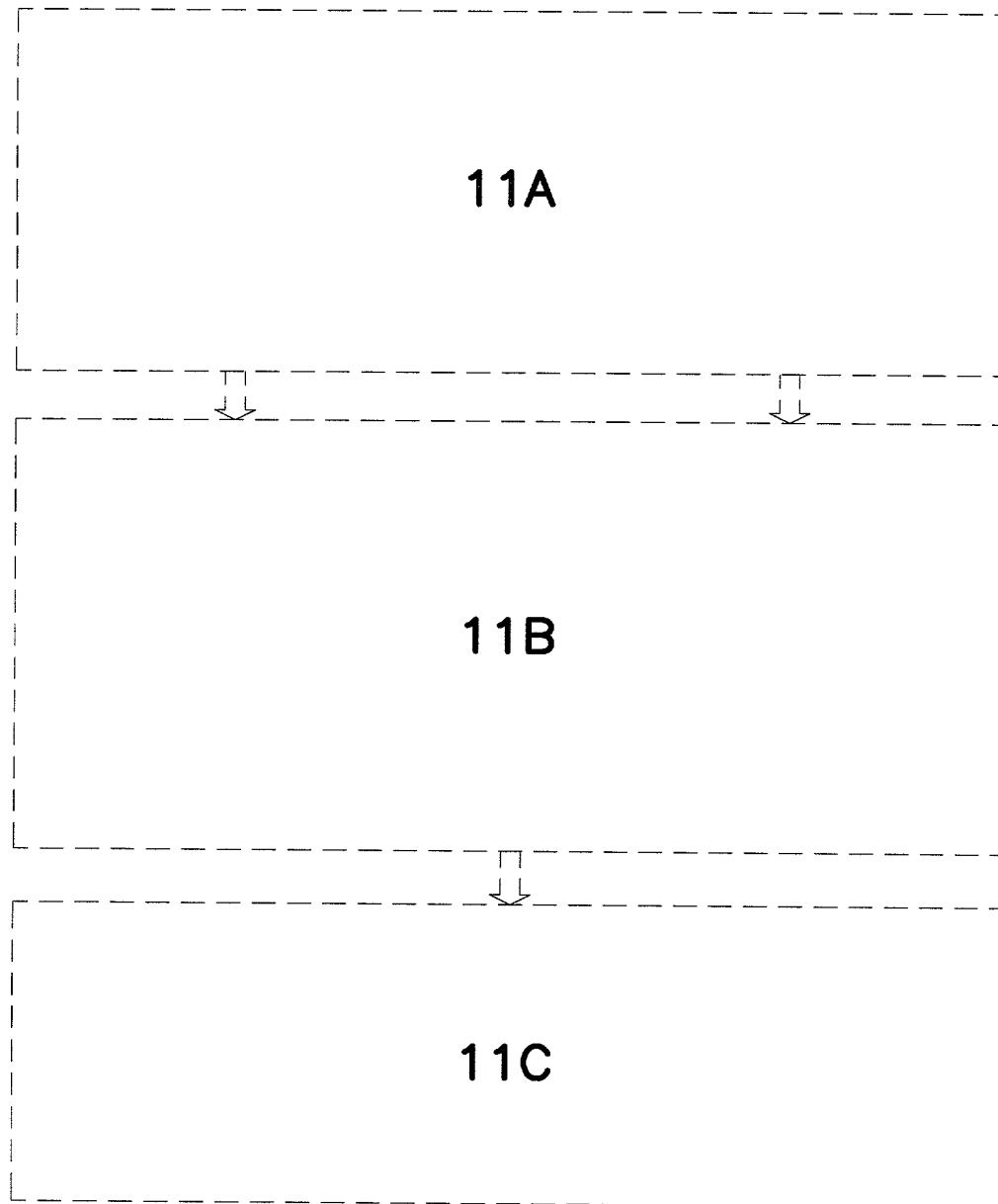


FIG. 11

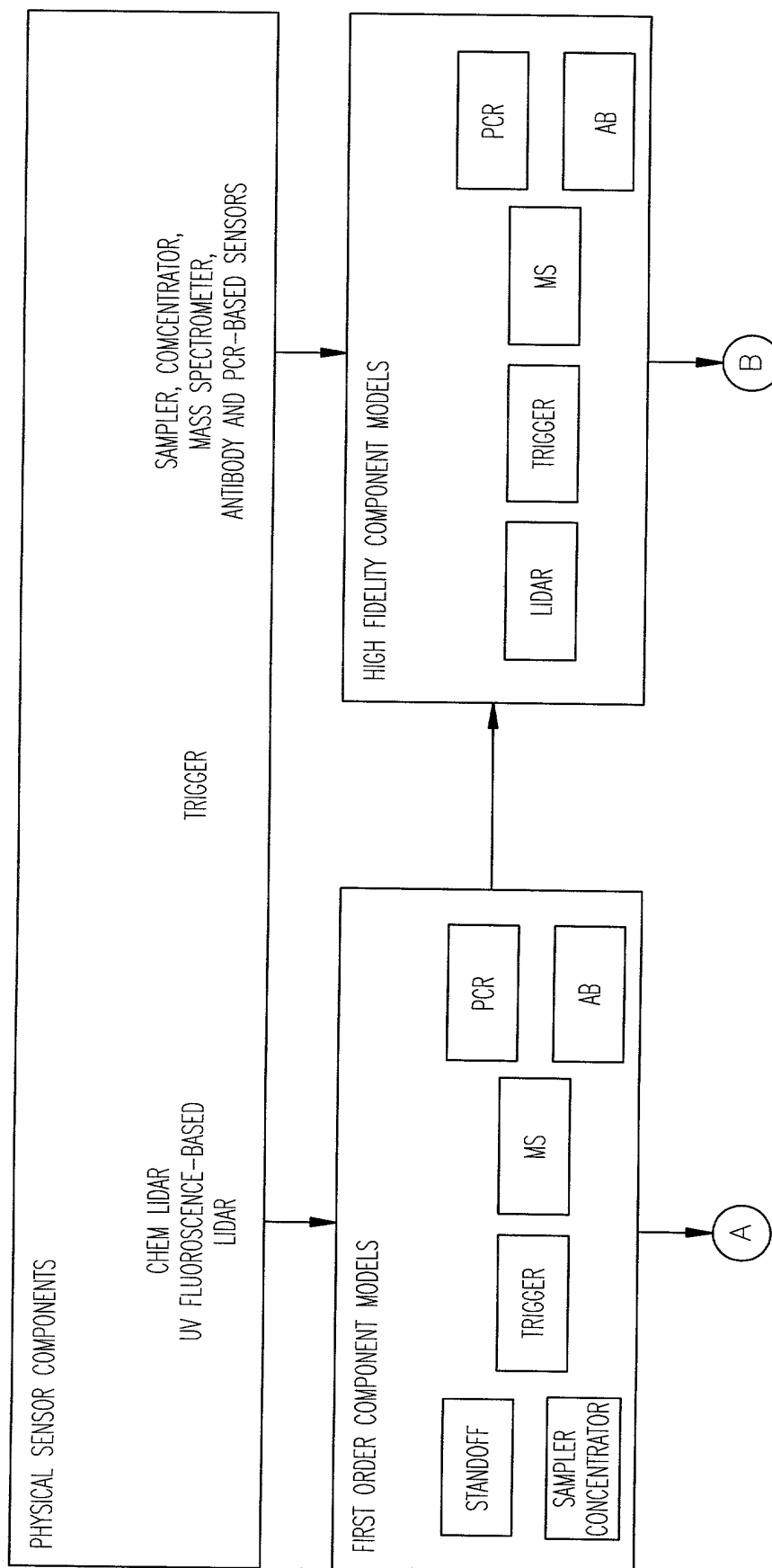


FIG. 11A

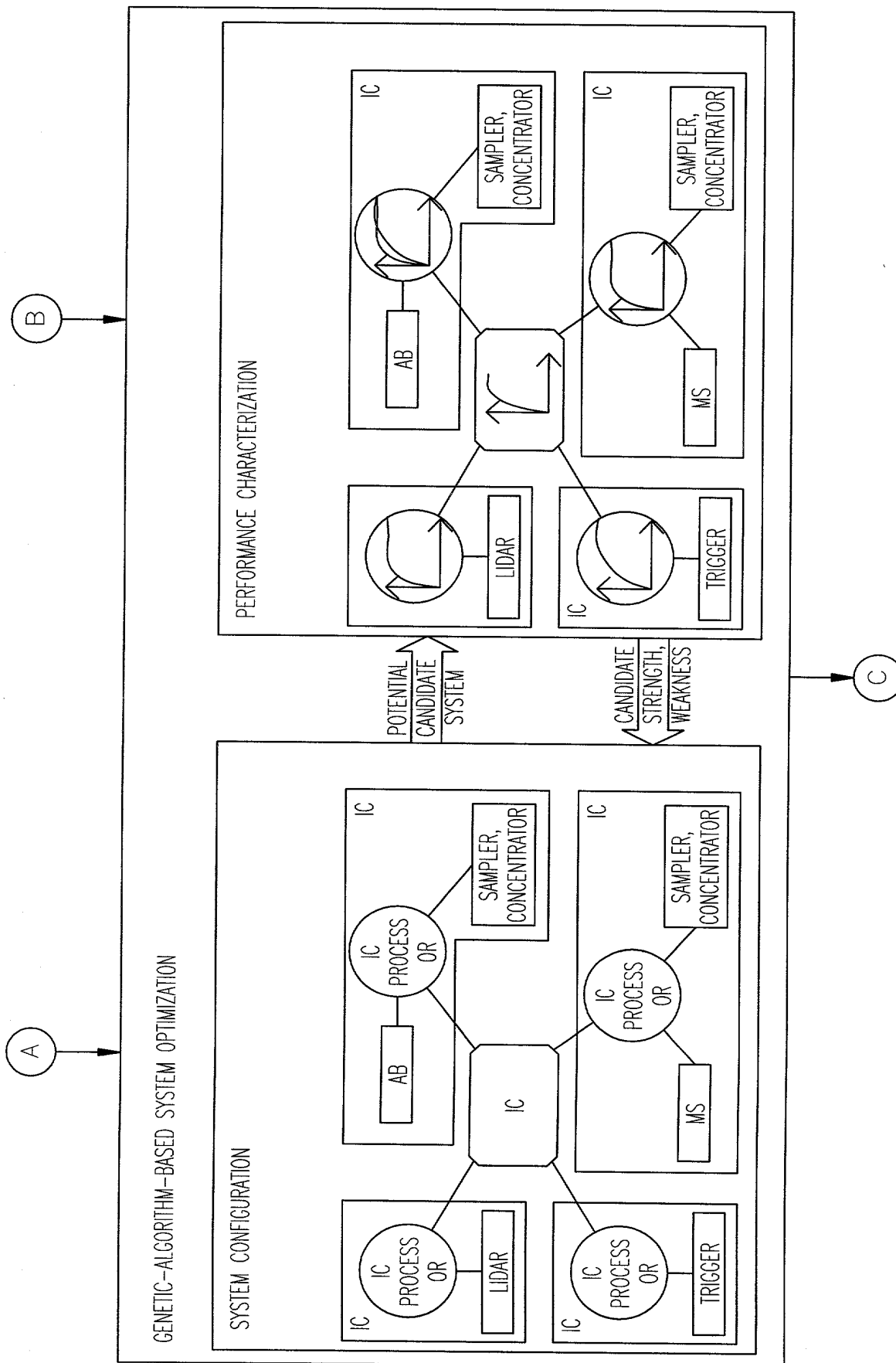


FIG. 11B

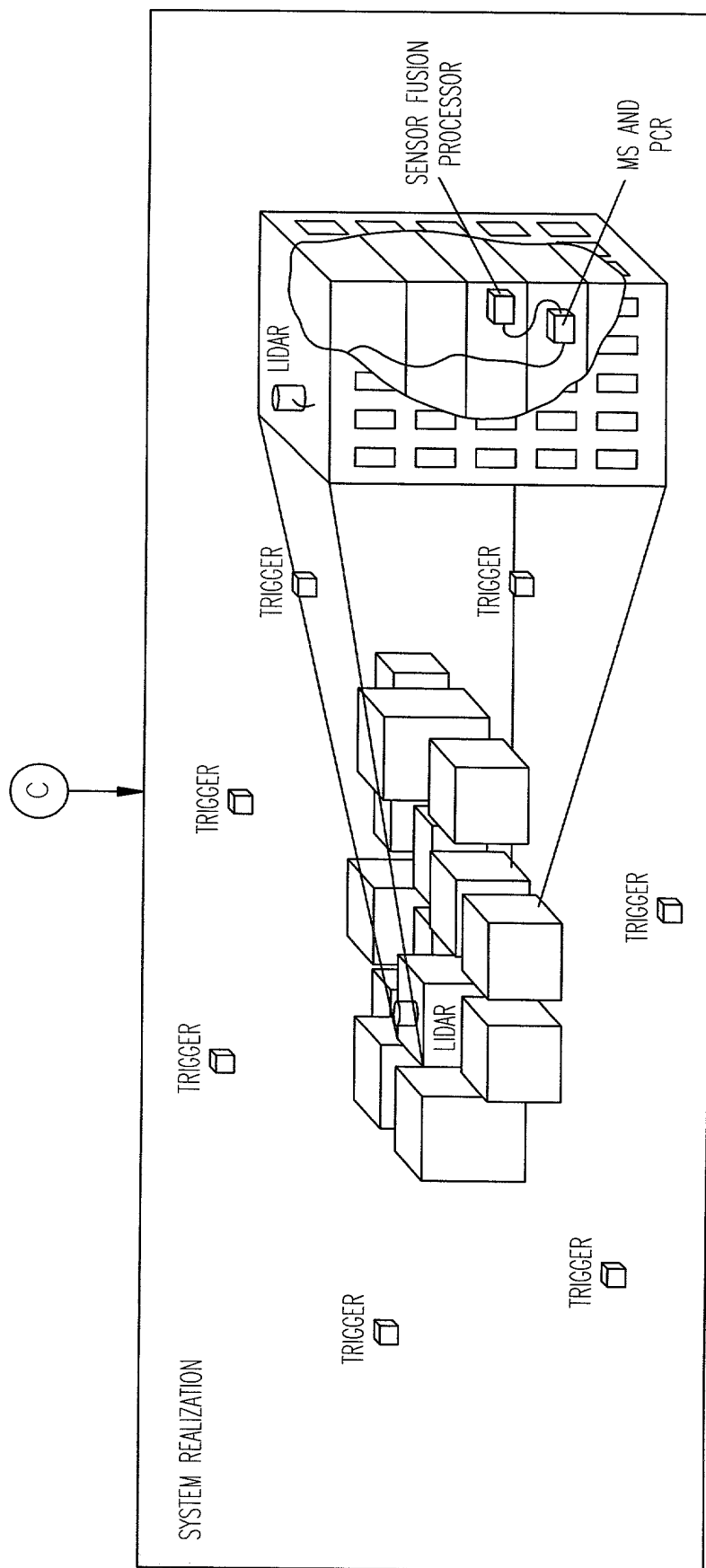


FIG. 11C


## OPTIMIZATION PROCESS

VARY SYSTEM CONFIGURATIONS AND DETECTOR THRESHOLDS TO:

- MAXIMIZE PROBABILITY OF DETECTION ( $P_D$ )
- MINIMIZE PROBABILITY OF FALSE ALARM ( $P_{FA}$ )
- MINIMIZE TIME OF RESPONSE ( $T_R$ )
- MINIMIZE CONSUMABLE COST (\$)
- MAXIMIZE MEAN TIME BEFORE SERVICE (MTBS)

$$Q \sim \frac{P_D \cdot \text{MTBS}}{P_{FA} \cdot T_R \cdot \$}$$

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Q = FIGURE OF MERIT FOR THE NETWORK

DETERMINE AND OPTIMIZE THE FIGURE OF MERIT  
DEPENDING UPON THREAT SCENARIOS

**FIG. 12**